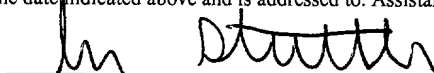


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John Stattler

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:

Steven Teig, et al.

Serial No.: Not Yet Assigned

Filed: Herewith

For: **Simulating Euclidean Wiring Directions  
Using Manhattan And Diagonal  
Directional Wires (As Amended)**

**PRELIMINARY AMENDMENT**

Box PATENT APPLICATION  
Assistant Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

Sir:

This Preliminary Amendments is concurrently filed with the above-entitled application, which is a continuation application of a presently pending application Ser. No. 09/681,776, entitled "Diagonal Wiring Architecture For Integrated Circuit", filed on June 3, 2001, which is a continuation application of a presently pending application Ser. No. 09/733,104, entitled "Multi-Directional Wiring On A Single Metal Layer," filed on

December 7, 2000. Applicants respectfully request that claims 1-20 and 36-47 be canceled (pursuant to the amendment below) before calculation of the filing fee.

**IN THE TITLE**

Please replace the current title, "Diagonal Wiring Architecture For Integrated Circuit" with "Simulating Euclidean Wiring Directions Using Manhattan And Diagonal Directional Wires."

**IN THE SPECIFICATION**

On page 1, line 1, please insert--

**CROSS REFERENCE TO RELATED APPLICATIONS**

This application is a continuation application of United States Patent Application Ser. No. 09/681,776, entitled "Diagonal Wiring Architecture For Integrated Circuit", filed on June 3, 2001, which is a continuation application of United States Patent Application Serial No. 09/733,104, entitled "Multi-Directional Wiring On A Single Metal Layer", filed on December 7, 2000.

Please delete paragraphs [0004], [0005], and [0006].

## SUMMARY OF THE INVENTION

As used herein, a “zig-zag” geometry connotes a combination of at least one wire deposited in a Manhattan direction coupled to at least one wire deposited in a diagonal direction. The use of zig-zag wiring permits simulating Euclidean directional wiring through use of Manhattan wiring and diagonal wiring (*e.g.*, 45 degrees, 60 degrees, etc.). In one embodiment, a “zig-zag” geometry comprises pairs of a Manhattan wire connected to a diagonal wire. Any Euclidean wiring angle may be achieved by selection of the proper wire lengths for the Manhattan and diagonal wire combinations.

Each pair of conductors, used to simulate the wiring direction, includes two wires. The first wire, which has a first wire length with first and second ends, is deposited in a Manhattan direction relative to the boundaries of the integrated circuit. The second wire, which has a second wire length with first and second ends, is deposited in a diagonal direction, and is coupled to the second end of the first wire. The effective wiring direction of the pairs of conductors comprises an angle,  $A$ , measured relative to the boundaries of the integrated circuit. Specifically, the effective wiring direction is defined by the expression  $\tan A = Y/X$ , wherein,  $Y$  defines a line segment with a distance that starts from the second end of the second wire in the last conductor pair and ends at an intersection with a line segment propagated from the first end of the first wire and in the direction of the first wire, and  $X$  comprises a distance, measured in the direction of the first wire, that starts from the first end of the first wire and ends with the intersection of

the Y line segment. The Manhattan direction includes either a horizontal or vertical direction. In some embodiments, the diagonal direction includes an octalinear or hexalinear directions. The pairs of conductors may be configured, essentially in parallel, to generate tracks of conductor on a metal layer in the simulated direction.

### **IN THE CLAIMS**

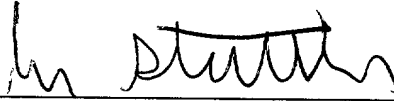
Please cancel claims 1-20 and 36-47.

### **REMARKS**

This Preliminary Amendments is concurrently filed with the above-entitled application, which is a continuation application of a presently pending application Ser. No. 09/681,776, entitled "Diagonal Wiring Architecture For Integrated Circuit", filed on June 3, 2001, which is a continuation application of a presently pending application Ser. No. 09/733,104, entitled "Multi-Directional Wiring On A Single Metal Layer " filed on December 7, 2000. In this Preliminary Amendment, Applicants have changed the title of this application, inserted a reference to the related parent application, deleted paragraphs in the Summary of the Invention, and canceled claims 1-20 and 36-47. Accordingly, claims 21-35 are currently pending in this application.

Respectfully submitted,

STATTLER JOHANSEN & ADELI LLP



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John Stattler

Reg. No.: 36,285

Dated: January 11, 2002

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